

3. (Amended) A coaxial resonator comprising:
an inner conductor formed on an outer surface of a columnar element;
a dielectric element having a hole formed therein, the columnar element being disposed in the hole; and
an outer conductor formed on an outer surface of the dielectric element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer of the inner conductor is greater in thickness than the other conductor layers of the inner conductor.

4. (Amended) The coaxial resonator according to Claim 3, wherein the inner conductor comprises a plurality of helical lines.

5. (Amended) The coaxial resonator according to Claim 3 or 4, wherein the outer conductor is formed by alternately laminating conductor layers and dielectric layers.

6. (Amended) The coaxial resonator according to Claim 5, wherein phase constants of lines for the conductor layers are substantially equal in the inner conductor and the outer conductor.

7. (Amended) The coaxial resonator according to Claim 3, further comprising a non-conducting element disposed between the columnar element and the dielectric element.

8. (Amended) A filter comprising:
a plurality of coaxial resonators, each coaxial resonator comprising:
an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an

outermost conductor layer of the inner conductor is greater in thickness than the other conductor layers of the inner conductor;

Sub C a dielectric element having a hole formed therein, the columnar element being disposed in the hole; and

an outer conductor formed on an outer surface of the dielectric element; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators.

Bcm 9. (Amended) A filter comprising:

a plurality of columnar elements, each columnar element having an inner conductor formed on an outer surface thereof, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer of the inner conductor is greater in thickness than the other conductor layers of the inner conductor;

a dielectric element having a plurality of holes formed therein, a respective one of the plurality of columnar elements being disposed in each hole of the plurality of holes to form a plurality of corresponding coaxial resonators; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of corresponding coaxial resonators.

10. (Amended) A duplexer comprising:

a transmission filter disposed between a transmission signal input port and a transmission/reception signal input/output port; and

Sub C a reception filter disposed between the transmission/reception signal input/output port and a reception signal output port,

wherein at least one of the transmission filter and the reception filter includes a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which

conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer of the inner conductor is greater in thickness than the other conductor layers of the inner conductor;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole; and

an outer conductor formed on an outer surface of the dielectric element;

and

See Claim 10.
an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators, the input/output device being coupled to a corresponding one of the ports.

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11. (Amended) A communication device comprising:

a high-frequency circuit comprising a transmission circuit and a reception circuit;

and

a duplexer comprising:

a transmission filter disposed between a transmission signal input port and a transmission/reception signal input/output port; and

a reception filter disposed between the transmission/reception signal input/output port and a reception signal output port,

wherein at least one of the transmission filter and the reception filter includes a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer of the inner conductor is greater in thickness than the other conductor layers of the inner conductor;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole; and

an outer conductor formed on an outer surface of the dielectric element; and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators and coupled to a corresponding one of the ports.

12. (Amended) A communication device comprising:

a high-frequency circuit comprising at least one of a transmission circuit and a reception circuit, the high-frequency circuit comprising:

a plurality of coaxial resonators, each coaxial resonator comprising:

an inner conductor formed on an outer surface of a columnar element, wherein the inner conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer of the inner conductor is greater in thickness than the other conductor layers of the inner conductor;

a dielectric element having a hole formed therein, the columnar element being disposed in the hole; and

an outer conductor formed on an outer surface of the dielectric element;

and

an input/output device coupled to a predetermined coaxial resonator of the plurality of coaxial resonators.

13. (New) The coaxial resonator according to Claim 3⁵, wherein an outermost conductor layer of the outer conductor is greater in thickness than the other conductor layers of the outer conductor.

14. (New) The filter according to Claim 8, wherein an outermost conductor layer of the outer conductor is greater in thickness than the other conductor layers of the outer conductor.

15. (New) The filter according to Claim 9, wherein an outermost conductor layer of the outer conductor is greater in thickness than the other conductor layers of the outer conductor.

16. (New) The duplexer according to Claim 10, wherein an outermost conductor layer of the outer conductor is greater in thickness than the other conductor layers of the outer conductor.

17. (New) The communication device according to Claim 11, wherein an outermost conductor layer of the outer conductor is greater in thickness than the other conductor layers of the outer conductor.

18. (New) The communication device according to Claim 12, wherein an outermost conductor layer of the outer conductor is greater in thickness than the other conductor layers of the outer conductor.

19. (New) A resonator comprising:

a dielectric element; and

a conductor formed on an outer surface of the dielectric element,

wherein the conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer is greater in thickness than the other conductor layers.

20. (New) A columnar element for a coaxial resonator, the columnar element comprising:

a cylindrical element; and

a conductor formed on an outer surface of the cylindrical element,

wherein the conductor has a multi-layer electrode structure in which conductor layers and dielectric layers are alternately laminated and wherein an outermost conductor layer is greater in thickness than the other conductor layers.